National Institute of Environmental Health Sciences

Study of the relationship between Aedes (Stegomyia) aegypti egg and adult densities, dengue fever and climate in Mirassol, state of São Paulo, Brazil

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Year: 2008
Journal: Memorias Do Instituto Oswaldo Cruz. 103 (6): 554-560

Abstract:

The purpose of this study was to examine the relationship between Aedes aegypti egg and adult density indices, dengue fever and climate in Mirassol, state of Sao Paulo, Brazil, between November 2004-November 2005. Weekly collections of adults and eggs were made using, respectively, manual aspirators and oviposition traps that produced four entomological indices (positivity and average of females and eggs). Weekly incidence coefficients were calculated based on dengue cases. Each week, the data obtained from entomological indices were related to each other, dengue, and climate variables. The first index to show an association with dengue transmission was the female average, followed by female positivity and egg average. Egg positivity did not show a relationship with risk for dengue, but was sensitive to identifying the presence of the vector, principally in dry seasons. The relationship between climatic factors, the vector and the disease found in this study can be widely employed in planning and undertaking dengue surveillance and control activities, but it is a tool that has not been considered by the authorities responsible for controlling the disease. In fact, this relationship permits the use of information about climate for early detection of epidemics and for establishing more effective prevention strategies than currently exist.

Source: http://dx.doi.org/10.1590/S0074-02762008000600008
http://www.ncbi.nlm.nih.gov/pubmed/18949325

Resource Description

Early Warning System:

resource focus on systems used to warn populations of high temperatures, extreme weather, or other elements of climate change to prevent harm to health

A focus of content

Exposure :

weather or climate related pathway by which climate change affects health

Precipitation, Temperature

Temperature: Fluctuations

Geographic Feature:

resource focuses on specific type of geography

Urban

Geographic Location: ☑

resource focuses on specific location

Non-United States

Non-United States: Central/South America

Health Impact: ☑

specification of health effect or disease related to climate change exposure

Infectious Disease

Infectious Disease: Vectorborne Disease

Vectorborne Disease: Mosquito-borne Disease

Mosquito-borne Disease: Dengue

Mitigation/Adaptation: ☑

mitigation or adaptation strategy is a focus of resource

Adaptation

Model/Methodology: ☑

type of model used or methodology development is a focus of resource

Exposure Change Prediction

Resource Type: ☑

format or standard characteristic of resource

Research Article

Timescale: ☑

time period studied

Short-Term (

Vulnerability/Impact Assessment: ☑

resource focus on process of identifying, quantifying, and prioritizing vulnerabilities in a system

A focus of content